IN THE CLAIMS

1. (Currently amended) A wavemeter for determining a wavelength of an incoming optical beam comprising:

a coarse-measuring unit for determining in a first wavelength range and with a first accuracy, a first wavelength value as representing the wavelength of the incoming optical beam,

a fine-measuring unit for providing a wavelength determination with a second accuracy for the incoming optical beam, wherein the wavelength determination is ambiguous within the first wavelength range but unambiguous in each of a plurality of unambiguous wavelength ranges, so that a plurality of different wavelength values correspond to a measuring value as measured by the fine-measuring unit for the incoming optical beam and wherein the second accuracy is higher than the first accuracy,

an evaluation unit for determining a second wavelength range covering the first wavelength value, and for determining a second wavelength value as the one of the plurality of different wavelength values that corresponds to the measuring value in the second wavelength range, and

output means for providing the second wavelength value as a measuring result of the wavemeter representing the wavelength of the incoming optical beam,

wherein the coarse-measuring unit comprises a beam splitter adapted for splitting up a received beam derived from the incoming optical beam into a first beam towards a first detector and a second beam directed towards a second detector, and wherein the beam splitter provides a coupling-ratio between the first and second beams which is dependent on the wavelength of the received optical beam.
~~one or more materials having a wavelength-dependency of reflection and/or transmission;~~
~~wherein a telecommunication window of the wavelength-dependency is approximately 1500-1600 nm.~~

2. (Previously presented) The wavemeter of claim 1, wherein the fine-measuring unit comprises means for providing a periodic wavelength dependency, the periodicity of the

wavelength-dependency being larger than a measuring fault or inaccuracy of the coarse-measuring unit.

3. (Previously presented) The wavemeter of claim 1, wherein the coarse-measuring unit comprises a dielectric coating having one or more layers of materials, chosen from the group of MgF_2, SiO, or CeF_3, with different refractive indices and thickness.

4. (Previously presented) The wavemeter of claim 1, wherein the coarse-measuring unit comprises a glass plate with a dielectric coating on one side and an anti-reflection coating on another side, thus representing a wavelength-dependent beamsplitter.

5. (Previously presented) The wavemeter of claim 1, further comprising an absolute-measuring unit having unambiguous wavelength properties.

6. (Currently Amended) A method for determining a wavelength of an incoming optical beam comprising:

determining in a first wavelength range and with a first accuracy a first wavelength value as representing the wavelength of the incoming optical beam,

providing a wavelength determination with a second accuracy for the incoming optical beam, wherein the wavelength determination is ambiguous within the first wavelength range but unambiguous in each of a plurality of unambiguous wavelength ranges, so that a plurality of different wavelength values correspond to a measuring value as measured for the incoming optical beam, and wherein the second accuracy is higher than the first accuracy,

determining a second wavelength range covering the first wavelength value,

determining a second wavelength value as the one of the plurality of different wavelength values that corresponds to the measuring value in the second wavelength range, and

providing the second wavelength value as measuring result representing the wavelength of the incoming optical beam;

wherein the first wavelength range is determined by a coarse-measuring unit comprising a beam splitter adapted for splitting up a received beam derived from the incoming optical beam into a first beam towards a first detector and a second beam directed towards a second detector, and wherein the beam splitter provides a coupling-ratio between the first and second beams which is dependent on the wavelength of the received optical beam.
~~one or more materials having a wavelength-dependency of reflection and/or transmission;~~
~~wherein a telecommunication window of the wavelength-dependency is approximately 1500-1600 nm~~.

7. (Previously presented) The method of claim 6, further comprising:
providing a reference measurement from an absolute-measuring unit having unambiguous and absolutely known wavelength properties.

8. (Previously presented) The method of claim 7, wherein providing a reference measurement is executed prior to determining in a first wavelength range and with a first accuracy a first wavelength value, for calibration before an actual measurement.

9. (Previously presented) The method of claim 7, wherein providing a reference measurement comprises:

sweeping an input signal over a wavelength range wherein the absolute-measuring unit has at least one of the unambiguous and absolutely known wavelength properties,

analyzing a measuring result derived from sweeping an input signal over a wavelength range, together with a measuring result derived from determining in a first wavelength range and with a first accuracy, a first wavelength value, and

providing a wavelength determination with a second accuracy for the incoming optical beam, for determining a relation between the unambiguous and absolutely known wavelength properties and the derived measuring result(s).

10. (Previously presented) The method of claim 7, wherein providing a reference measurement is executed for calibrating a wavemeter, and/or for adjusting measuring results as provided by the wavemeter, said wavemeter comprising:

a coarse-measuring unit for determining in a first wavelength range and with a first accuracy a first wavelength value as representing the wavelength of the incoming optical beam,

a fine-measuring unit for providing a wavelength determination with a second accuracy for the incoming optical beam, wherein the wavelength determination is ambiguous within the first wavelength range but unambiguous in each of a plurality of unambiguous wavelength ranges, so that a plurality of different wavelength values correspond to a measuring value as measured by the fine-measuring unit for the incoming optical beam and wherein the second accuracy is higher than the first accuracy,

an evaluation unit for determining a second wavelength range covering the first wavelength value, and for determining a second wavelength value as the one of the plurality of different wavelength values that corresponds to the measuring value in the second wavelength range, and

output means for providing the second wavelength value as measuring result of the wavemeter representing the wavelength of the incoming optical beam,

wherein the coarse-measuring unit comprises one or more materials having a wavelength-dependency of reflection and/or transmission.

11. (Previously presented) The method of claim 7, wherein determining a second wavelength range covering the first wavelength value comprises determining the second wavelength range as a wavelength range around the first wavelength value.

12. (Previously presented) The method of claim 11, wherein the second wavelength range is determined by adding and subtracting a value.

13. (Currently amended) A software product, for executing a method for determining a wavelength of an incoming optical beam, when run on a data processing system such as a computer, said method comprising:

determining in a first wavelength range and with a first accuracy a first wavelength value as representing the wavelength of the incoming optical beam,

providing a wavelength determination with a second accuracy for the incoming optical beam, wherein the wavelength determination is ambiguous within the first wavelength range but unambiguous in each of a plurality of unambiguous wavelength ranges, so that a plurality of different wavelength values correspond to a measuring value as measured for the incoming optical beam, and wherein the second accuracy is higher than the first accuracy,

determining a second wavelength range covering the first wavelength value,

determining a second wavelength value as the one of the plurality of different wavelength values that corresponds to the measuring value in the second wavelength range, and

providing the second wavelength value as measuring result representing the wavelength of the incoming optical beam~~;~~

wherein the first wavelength range is determined by a coarse-measuring unit comprising a beam splitter adapted for splitting up a received beam derived from the incoming optical beam into a first beam towards a first detector and a second beam directed towards a second detector, and wherein the beam splitter provides a coupling-ratio between the first and second beams which is dependent on the wavelength of the received optical beam.

~~one or more materials having a wavelength-dependency of reflection and/or transmission;~~

~~wherein a telecommunication window of the wavelength-dependency is approximately 1500-1600 nm~~.

14. (Previously presented) The software product of claim 13, wherein said software product is stored on a data carrier.

15. (Previously presented) The wavemeter of claim 1, further comprising

an absolute-measuring unit having unambiguous wavelength properties, including absolutely known transmission features provided by a gas absorption cell.

16. (Previously presented) The method of claim 6, further comprising:

providing a reference measurement from an absolute-measuring unit having unambiguous and absolutely known wavelength properties, including absolutely known transmission features provided by a gas absorption cell.

17. (Previously presented) The method of claim 7, wherein providing a reference measurement is executed concurrently with determining in a first wavelength range and with a first accuracy, a first wavelength value, and providing a wavelength determination with a second accuracy for the incoming optical beam, for providing a continuous calibration.

18. (Previously presented) The method of claim 7, wherein providing a reference measurement is executed concurrently with determining in a first wavelength range and with a first accuracy, a first wavelength value, or providing a wavelength determination with a second accuracy for the incoming optical beam, for providing a continuous calibration.

19. (Previously presented) The method of claim 7, wherein providing a reference measurement comprises:

sweeping an input signal over a wavelength range wherein the absolute-measuring unit has at least one of the unambiguous and absolutely known wavelength properties,

analyzing a measuring result derived from sweeping an input signal over a wavelength range together with a measuring result derived from determining in a first wavelength range and with a first accuracy, a first wavelength value, or providing a wavelength determination with a second accuracy for the incoming optical beam, for

determining a relation between the unambiguous and absolutely known wavelength properties and the derived measuring result(s).

20. (Previously presented) The method of claim 11, wherein the second wavelength range is determined by adding and subtracting a value corresponding to half of the period of the unambiguous wavelength range covering the first wavelength value, to and from the first wavelength value.

21. (New) A method for determining a wavelength of an incoming optical beam, comprising:

receiving first signals from a first and a second detector disposed in a coarse-measuring unit;

determining a first wavelength value from said first signals;

receiving second signals from a third and a fourth detector disposed in a fine-measuring unit;

determining a plurality of second wavelength values from said second signals;

selecting a value of said plurality of second wavelength values by determining a target wavelength range around said first wavelength value and selecting said second wavelength value that falls within said target wavelength range; and

providing said second wavelength value as said wavelength of said incoming optical beam.

22. (New) The method according to claim 21, wherein said target wavelength range is one of a plurality of predefined wavelength ranges that cover said first wavelength value.

23. (New) The method according to claim 21, wherein said target wavelength range is determined by adding a half of a period around said first wavelength value.

24. (New) The method according to claim 21, wherein said target wavelength range is determined by subtracting a half of a period around said first wavelength value.

25. (New) The method according to claim 21, further comprising:

calibrating a wavemeter having said coarse-measuring unit and said fine-measuring unit in order to generate a power value set; and

storing said power value set in a look-up table that is capable of being used to determine an unknown wavelength based on measured power values.

26. (New) The method according to claim 25, wherein said coarse-measuring unit is calibrated with an absolute-measuring unit and further comprising:

finding a value in said look-up table that corresponds to a received power value.

27. (New) The wavemeter of claim 1, wherein said fine-measuring unit comprises:

a birefringent element for introducing a phase shift on different polarization states of said incoming optical beam; and

a polarizaring beam splitter in combination with said birefringent element adapted for splitting a received beam derived from said birefringent element into a third beam towards a third detector and a fourth beam directed towards a fourth detector, providing a tangent relationship between said third beam and said forth beam.